

# NATIONAL AIR INTELLIGENCE CENTER



FREQUENCIES USED WITH SATELLITES (PART 2)



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*Chinese Space Science and Technology (Zhongguo Kongjian Kexue Jishu)*  
April, 1994, No. 2

## FREQUENCIES USED WITH SATELLITES (PART 2)

### Classified According to Satellite Services

### From Article 8 of the International Telecommunication Union Regulations

(Romanized Title: *Weixing Yong Pinlü*)

By Chen Daoming (China Space Science and Technology Institute,  
Beijing, 10081)

See Volume 1, 1994, pages 68-69 of this journal for "Frequencies Used With Satellites (Part 1)."

#### 2. Space Research Service

149.9–150.05	MHz	(609) Reception of radionavigation satellite transmissions
156.8	MHz	(501) See 2182 kHz
174–184	MHz	(619) Used by China. (S-E) Must comply with procedures in Article 14 <sup>1</sup>
243	MHz	(501) See 2182 kHz
267–272	MHz	Space telemetry. Must comply with regulations in Article 14
399.9–400.05	MHz	(609) Reception of radionavigation satellite transmissions
400.15–401	MHz	(S-E) and (647A) (S-S) For manned spacecraft communications, but not for safety service
410–420	MHz	S (S-S) (651A) Manned spacecraft communications within 5 km
449.75–450.25	MHz	(668) (E-S) Must comply with regulations in Article 14

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<sup>1</sup> Original wording in ITU Regulations: "...subject to agreement obtained under the procedure set forth in Article 14."

470–485	MHz	(673) Used by China. (S-E) Must comply with regulations in Article 14
1215–1300	MHz	(713) S (S-E) Radio positioning
1370–1400	MHz	(720) S (Passive)
1400–1727	MHz	(Passive) SETI
1660.5–1668.4	MHz	(Passive)
2025–2110	MHz	(E-S and S-S) Must comply with Res. Com. 4/3 (750A) There must be no interference with non-fixed satellite link
2110–2120	MHz	(Deep space) (E-S) (746A) Applies FPLMTS, conforms to Res. Com. 4/4 (746X) Must comply with Res. Com. 5/8 after Jan. 1, 2005
2200–2290	MHz	(S-E and S-S) Must comply with Res. Com. 4/3 (750A) There must be no interference with non-fixed satellite link
2290–2300	MHz	(Deep space) (S-E)
2640–2655	MHz	(720) S (Passive)
2655–2670	MHz	(Passive) (758) Not applicable to Germany or Greece (759) Not applicable to Bulgaria or Russia
2670–2690	MHz	S (Passive)
2690–2700	MHz	(Passive)
3100–3300	MHz	(713) S (S-E) Used for radiolocation
4200–4400	MHz	(789) S (Passive) Not protected by radio altimeters, however
4950–4990	MHz	(720) S (Passive)
4990–5000	MHz	S (Passive)
5250–5255	MHz	S
5250–5350	MHz	(713) S (S-E) Used for radio positioning
5650–5725	MHz	S (Deep space), (804) cc
7145–7190	MHz	(811) (E-S) Must comply with regulations in Article 14
7190–7235	MHz	(811) (E-S) Must comply with regulations in Article 14 (does not include deep space)
8400–8500	MHz	(S-E) (816) (Deep space) (817) cc S
8550–8650	MHz	(713) S (S-E) Used for radio positioning
10.6–10.7	GHz	(Passive)
12.75–13.25	GHz	S (S-E) (Deep space)
13.25–13.4	GHz	(852) S Must comply with regulations in Article 14
13.4–14	GHz	S and (713) S (S-E) Used for radio positioning

14.4–14.47	GHz	S (S-E)
14.5–15.35	GHz	S
15.2–15.35	GHz	(720) S (Passive)
15.35–15.4	GHz	(Passive)
16.6–17.1	GHz	S (E-S) (Deep space)
17.2–17.3	GHz	S (Active)
18.6–18.8	GHz	2 (Passive) and 1, 3 (Passive)
21.2–21.4	GHz	(Passive)
22.21–22.5	GHz	(Passive) (876) Must not place limits on fixed and mobile services
23.6–24	GHz	(Passive)
31–31.3	GHz	S (Passive) (884) Must comply with Section 2582 (885) cc
31.3–31.8	GHz	(Passive)
31.8–32.3	GHz	(S-E) (Deep space) (893) Must protect radionavigation service
34.2–34.7	GHz	(E-S) (Deep space)
34.7–35.2	GHz	S (896) cc
35.5–35.6	GHz	(897) Satellite-borne radar
36–37	GHz	(Passive)
37–38	GHz	(S-E)
40–40.5	GHz	(E-S)
50.2–59	GHz	(Passive)
64–65	GHz	(Passive)
65–66	GHz	
74–84	GHz	S (S-E)
78–79	GHz	(912) Satellite-borne radar
86–92	GHz	(Passive)
100–102	GHz	(Passive)
101–120	GHz	(722) SETI (Passive)
105–126	GHz	(Passive) (916) ISM interference occurs at 122.5 GHz
150–151	GHz	(Passive)
164–168	GHz	(Passive)
174.5–176.5	GHz	(Passive)
182–185	GHz	(Passive)
197–220	GHz	(722) SETI (Passive)
200–202	GHz	(Passive)
217–231	GHz	(Passive)

235–238	GHz	(Passive)
250–252	GHz	(Passive)

### 3. Intersatellite Service

5000–5250	MHz	(797) Must comply with regulations in Section 797 and Article 14
15.4–15.7	GHz	(797) Must comply with regulations in Section 797 and Article 14
22.55–23.55	GHz	(879) Must protect radio astronomy service <sup>2</sup> at frequencies between 22.81–22.86 GHz and 23.07–23.12 GHz (see Sections 343 and 344 and Article 36)
24.45–24.75	GHz	(882X) Must protect radionavigation service
25.25–27.5	GHz	(881A) Application limited to space research and Earth exploration (881B) Non-fixed-orbit satellites are limited
32–33	GHz	(893) Must protect radionavigation service
54.25–58.2	GHz	
59–64	GHz	(911) ISM interference occurs at 61.25 GHz
116–134	GHz	(916) ISM interference occurs at 122.5 GHz
170–182	GHz	(919) Should protect radio astronomy service at frequencies between 174.42–175.02GHz, 178.2–178.6 GHz, and 181–181.46 GHz
185–190	GHz	(919) Should protect radio astronomy service at frequencies between 186.2–186.6 GHz

### 4. Broadcast Satellite Service

620–790	MHz	(693) Used for FM TV. Must comply with Res. 33, Res. 507, and Rec. [sic] 705
1452–1492	MHz	(722A) Digital sound. Must comply with Res. Com. 4/W, (722AA) cc S. applies after April 1, 2007
2310–2360	MHz	(750B) 2, 3 – the United States and India. Primary service is digital sound. Must comply with Res. Com. 4/W
2520–2670	MHz	Used by national and regional systems for collective reception. Must comply with Article 14, Sections 2561 and 2564 (760) Must protect radio astronomy service

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<sup>2</sup> Original wording: "...administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference."

2535–2655	MHz	1, 3 cc, Digital sound. Must comply with Res. Com. 4/W (760) Must protect radio astronomy service
11.7–12.5	GHz	1 (Refer to Res. Com. 5/3 WARC-92)
11.7–12.2	GHz	3 (Refer to Res. Com. 5/3 WARC-92)
12.2–12.7	GHz	2 Use limited to domestic and regional systems, must comply with Article 15
12.5–12.75	GHz	3 (847) Use limited to collective reception
17.3–17.7	GHz	2 (868A) Shared between 17.3–17.8GHz frequencies and fixed satellite service (E-S). Complies with the first Paragraph of Attachment 4 of Appendix 30A. (869A) Applies after April 1, 2007
21.4–22.	GHz	1, 3 (873AA) Applies after April 4, 2007, complies with Res. Com. 5/5
40.5–42.5	GHz	
84–86	GHz	(913) Will protect other services

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